CHILD WELFARE MENTAL HEALTH SCREENING INITIATIVE

*EVALUATION PROGRESS REPORT**

July 2007

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* This evaluation is supported financially by a contract with the Indiana Family and Social Services Administration (Contract No. 59-06-HO-0203)

OVERVIEW

The child welfare mental health screening initiative, sponsored by the Indiana Family and Social Services Administration, was developed to identify children with mental health needs who are referred to the child welfare system. The goal of this program is to provide better care to children in need of mental health services and reduce the number of failed placements. Multiple State agencies have been involved in planning and implementing this initiative. During the past year, the agencies have focused on implementing the program, including training county-level field staff on the screening tool, developing formal plans to make referrals for mental health consultations, and actually beginning the screening process. On January 1, 2005, all county agencies began screening all children referred to the State.

As part of the project, Dr. Eric R. Wright, Director of The Center for Health Policy and Associate Professor, School of Public and Environmental Affairs, IUPUI and his research staff were asked to initiate an independent evaluation of both the planning and implementation of this initiative. This report is the ninth official evaluation report required under the continuation contract. This report provides an analysis of data for children in placement during the year preceding initiative implementation (benchmark), the six month pilot period, and the first full year and three quarters of implementation.

I. EVALUATION DESIGN AND METHODS

Memorandum of Understanding. This evaluation analyzes data collected by three state agencies: the Division of Mental Health and Addiction (DMHA), the Department of Child Services (DCS) and the Office of Medicaid Policy and Planning (OMPP). In compliance with the Memorandum of Understanding (MOU), signed into effect on November 22, 2004, each agency provided the evaluation team with an unidentifiable dataset, including only children who were in placement during the reporting period. The data includes an Enterprise Client Identifier (ECI), assigned by Data Transformation Services (DTS), whose sole purpose is to match the individual datasets into a single data file. Each agency provided the evaluation team with pre-screening implementation benchmark data for the reporting period of July 1, 2003 through June 30, 2004, the pilot implementation period of July 1, 2004 through December 31, 2004, and the first full year and three quarters of implementation (January 1, 2005 through September 30, 2006). These data were used for statistical modeling, as well as to provide a comparison group for post-screening implementation data.

Data. All data received from the aforementioned state agencies is analyzed and managed using SPSS and Microsoft SQL Server. The analysis of benchmark data focuses on constructing measures comparable to post-screening implementation data in order to demonstrate the effectiveness and inclusiveness of the screening initiative. Each variable was checked for outliers and missing values and transformed appropriately. Post-implementation pilot data was evaluated in the same manner and compared to benchmark data. To ensure confidentiality, the data provided did not include any identifying information. All three datasets were merged together using the Enterprise Client Identifier (ECI). This number, assigned by DTS, allows the evaluation team to recognize the same individual across the three separate data systems without providing identifying characteristics.

DCS Data. The data provided by the Department of Child Services (DCS) includes all children who were in substitute care during the benchmark period, the year prior to pilot implementation of July 1, 2003 to June 30, 2004 and the six months of the pilot implementation period of July 1, 2004 through December 31, 2004. DCS also provided data for the first full year of implementation (January 1 through December 31, 2005) and the first three quarters of 2006 (January 1 through September 30). Only children who were removed or declared a Child in Need of Services (CHINS) during the reporting periods were selected in order to provide a longitudinal comparison of future data.

During the course of this project, it was discovered that the evaluation team was not receiving data for all children within the DCS system. Specifically, as a result of the de-identification process, only children assigned an enterprise client identifier (ECI) were included in the dataset provided; however, not all children were assigned such a number. Assigning a child an ECI number requires that he/she is in another data system, such as the TANF database, in addition to the DCS system. This substantially reduced the number of children in the data file used to conduct the analyses. The data error has been corrected in this report.

The DCS data includes information regarding demographics, current and previous CHINS, removal dates, the total number of removals, and the number of placements within the current case. Both a multiple CHINS indicator and a removal indicator were computed using the data provided. If a child had an initial CHINS date that occurred before the current CHINS date, the multiple CHINS indicator was coded as a 1, indicating multiple CHINS have occurred. If the initial and current CHINS dates are the same, the variable was coded as a 0, indicating that this is the first occurrence. The multiple removal indicator was coded in the same manner, but based upon the number of previous removals recorded in the data. If a child has 1 or more previous removals, the removal indicator was coded as a 1; a code of 0 was used otherwise. Race was also recoded into a dichotomous measure for statistical purposes, white (0) and nonwhite (1). Additionally, the variable indicating screening results of children who were screened was recoded to collapse like categories. The resulting variable is coded as 1 'Urgent Referral', 2 'Refer for follow-up, 3 'Re-screen' and 4 'No Identified risk.' The results were further collapsed into a dichotomous variable indicating whether or not a risk was identified in the screening.

DMHA Data. The Division of Mental Health and Addiction (DMHA) also provided data for those children who had received services through their agency during the benchmark, pilot and full implementation periods. A variable indicating whether the child had received DMHA services was computed and coded as a 1 if DMHA data existed on the child. A variable indicating if the DMHA enrollment date is before or after the initial CHINS date was also computed.

OMPP Data. The Office of Medicaid Policy and Planning (OMPP) provided data regarding behavioral health services that a child had received during the benchmark, pilot, and full implementation periods. The nature of this data required significant transformations before being analyzed. The data were aggregated to create a single record for each child per reporting period. The first service date variable set to the earliest date within all records pertaining to each child. The last service date was set to the latest date for each child. The amount paid was calculated as a sum of the amount paid for all behavioral health records associated with each specific child. Finally, the category of service and procedure codes were set to counts of each episode of mental health or addiction care provided to each specific child.

II. DATA ANALYSIS

Client Flow—Benchmark Period.

Using data from DCS, client flow was analyzed with regard to changes in placement during the benchmark period (N=2,816). A descriptive analysis of recidivism shows that 17.6% of children removed or declared a CHINS during the benchmark period had one or more previous contacts. The results also show that 16.0% of children declared a CHINS or removed during the benchmark period had one or more previous removals. Table 1 provides a descriptive analysis of these characteristics.

Further analysis of client flow reveals that of the 2816 children either declared a CHINS or removed, 256 (10.2%) received behavioral health services paid by OMPP or DMHA within 60 days of their last DCS contact. This number does not include children who have received services prior to their last CHINS/removal in order to isolate the potential causal relationship between the DCS contact and the receipt of services. Table 2 is provided to show this analysis for all periods.

Mental Health Services. Analysis of DMHA data reveals that of all children who were declared a CHINS or removed during the three periods, 3,480 (22.2%) received services through the DMHA at some point. In the benchmark period, 747 (26.5%) children received such services. Descriptive statistics regarding the level of function (LOF) of this group are provided in Table 3.

In addition to DMHA, Medicaid data shows that an additional 1,196 (42.5%) children declared a CHINS or removed in the benchmark period received mental health or addiction treatment at some point. When data from both DMHA and OMPP are merged, the data show that 1,219 (43.3%) unique children declared a CHINS during the benchmark period received mental health or addiction services, of whom 216 (17.7%) received these services prior to their contact with DCS.

Recidivism and Permanency. Five variables were used to measure recidivism and stability. These variables include initial CHINS date, current CHINS date, initial removal date, current removal date, and total number of removals. The presence of multiple CHINS, as defined by an initial CHINS date occurring before the current CHINS date, indicates a pattern of recidivism. The analysis shows that 495 (17.6%) children removed during the benchmark period had a previous CHINS. A logistic regression model was also utilized, using the multiple CHINS indicator as the dependent variable and age, race, gender, a variable indicating that a child received DMHA services prior to their initial CHINS, and a variable indicating that a child received behavioral health services paid by OMPP prior to their CHINS. The results of the regression show that age and whether or not a child received services paid by OMPP are significantly related with recidivism. More specifically, older children were more likely to experience recidivism. Children who have received behavioral health services paid by OMPP prior to DCS contact are less likely to experience recidivism than those who have not had behavioral health services. The complete results of this model are displayed in Table 4.

In addition to recidivism, a measure of placement stability was computed based upon the number of removals as well as the dates of the initial and current removals. If a child had more than a single removal or their initial removal date occurred prior to their current removal date, a variable indicating such was coded as 0. If a child had only a single removal, the stability measure was coded as a 1. This measure indicates that the child is experiencing placement stability. The data show that 450 (16.0%)

children removed during the benchmark period had a previous removal. The same logistic regression model used to analyze recidivism was used to analyze the stability measure. The results indicate that one of the significant predictors of multiple removals is age. This is to say that older children are less likely to experience placement stability than younger children. Of greater interest, however, is that the other significant variable in the model, whether or not they receive mental health/addiction treatment paid by OMPP, indicates that children receiving such services are more likely to experience stability. The full results of the regression model are presented in Table 4.

Service Expenditures. The third series of analyses examines the expenditures for services provided to clients. Using expenditure data provided by OMPP, the evaluation team examined the costs associated with mental health and addiction treatment during the benchmark period. The data show that of the 2,816 children removed or declared a CHINS during the benchmark period, 1,196 (42.5%) children received mental health or addiction services paid by Medicaid dollars in the benchmark period. The total dollar amount spent for these services, for children enrolled with DCS, was $2,713,933, averaging to $,2269 per child receiving services. As a comparison, the total dollars spent on behavioral health services for all children during the benchmark period was $118,785,896 for 54,392 children, an average of $2,184 per child.

Client Flow—Pilot Implementation Period.

Using data from DCS, client flow was analyzed with regard to the pilot implementation (N=2,238) period. Our analysis shows that there is a significant difference between the demographics of both the benchmark and pilot periods in age and race categories. More specifically, the percentage of non-whites decreased during this period and the difference in age is attributable to an increase in the number of children removed under one year of age. Furthermore, a descriptive analysis of recidivism shows that during the pilot implementation period 17.8% of children had a previous CHINS. The results also show that 336 (15.0%) children removed or declared a CHINS during the pilot period had one or more previous removals. Table 1 provides a descriptive analysis of these characteristics.

Further analysis of client flow reveals that of the 2,238 children declared a CHINS or removed, 876 (39.1%) were screened for mental health or addiction needs during the pilot period. Furthermore, of these 876 screened children, 338 (38.6%) had an identified risk. A total of 269 (12.0%) children received behavioral health services paid by OMPP or DMHA within 60 days of their last DCS contact during the pilot period. Of those children who received services, 63 (23.1%) were screened and identified as having a risk. These numbers do not include children who have received services prior to their last CHINS/removal in order to isolate the potential causal relationship between the DCS contact and the receipt of services. Table 2 is provided to show this analysis for all periods.

Mental Health Services. Analysis of DMHA data for the pilot implementation reveals that 489 (21.8%) children received such services during the pilot period, a significantly smaller proportion than during the benchmark period ($t=3.847$; $p \leq .001$). Descriptive statistics regarding the level of function of this group is provided in Table 3.

Medicaid data shows that during the pilot period 903 (40.3%) children received behavioral health services paid by OMPP; there was not a significant difference from the benchmark period ($t=1.521$; p

<= .128). Between both DMHA and OMPP, a total of 923 (41.2%) children received behavioral health services from either agency during the pilot period, with 214 (23.2%) receiving services prior to their contact with DCS.

Screening. Beginning on July 1, 2004, DCS began a pilot implementation of the screening initiative. This pilot implementation included a small subset of counties within the state. During the pilot periods, a total of 2,238 children were declared a CHINS or removed. Of these children, 876 (39.1%) were screened for mental health or addiction needs. Based solely on available data, the proportion of children screened within an individual pilot county cannot be determined.

The results for those children screened reveal 372 (42.5%) had no identified risk, 166 (18.9%) required re-screening and 338 (38.6%) had an identified risk. Of those with an identified risk, 273 (80.8%) were identified as needing an urgent referral. Further analysis reveals that 63 (18.6%) children, having an identified risk, received treatment within 60 days of referral as a result of the screening.

Recidivism and Permanency. To measure recidivism and permanency for the pilot period, the same variables were used as in the benchmark period. These variables include initial CHINS date, current CHINS date, initial removal date, current removal date, and total number of removals. The presence of multiple CHINS, as defined by an initial CHINS date occurring before the current CHINS date, indicates a pattern of recidivism. The analysis shows that 398 (17.8%) children removed or declared a CHINS during the pilot period had a previous CHINS. A logistic regression model was also utilized, using the multiple CHINS indicator as the dependent variable and age, race, gender, a variable indicating that a child received DMHA services prior to their initial CHINS, a dichotomous version of screening results as independent variables to determine the probability of having multiple CHINS, and a variable indicating if the screening identified risk. The results of the regression show that age and receiving OMPP services are significant variables associated with recidivism during the pilot period. More specifically, older children are more likely to experience recidivism than younger children, and those who had received OMPP services prior to their first CHINS or removal are less likely to experience recidivism. Of greater interest, the results significantly indicate that if the screening reveals an identified risk, a child is less likely to experience recidivism.

In addition to recidivism, a measure of permanency was computed based upon the number of removals. If a child had more than a single removal, a variable indicating such was coded as 0. This measure indicates that the child is experiencing placement stability. The data show that 336 (15.0%) children who were removed or declared a CHINS during the pilot period had a previous removal. The same logistic regression model used to analyze recidivism was used to analyze the stability measure. The results indicate that one of the significant predictors of multiple removals, during the pilot period is age. This is to say that older children are more likely to have multiple removals than younger children. In addition to age, the model also shows that if a child received services paid by OMPP, they are more likely to experience stability. Furthermore, the results indicate that if the screening reveals an identified risk, a child is significantly more likely to have stability in placement. This finding suggests that those with multiple removals are likely to have a need for such treatment. The full results of the regression model are presented in Table 4.

Service Expenditures. Medicaid data for the pilot periods allowed the evaluation team to examine the costs associated with behavioral health treatment. The data show that of the 2,238 children removed or

declared a CHINS during the pilot period, 903 (4.3%) children in the DCS system received mental health or addiction services paid by Medicaid dollars totaling $1,613,361. The average dollar amount spent for these services per child was $1,787 in the pilot period. As a comparison, the total dollars spent on behavioral health services for all children during the pilot period was $93,010,513 for 44,949 children, an average of $2,069 per child.

Client Flow—Full Implementation Period.

Using data from DCS, client flow was analyzed with regard to the full implementation period (N=10,597). The larger number of DCS clients in our data, as compared to the benchmark period, is likely the result of greater precision in assigning ECI numbers. Our analysis shows that there is a significant difference between the ages and race of children having contact with DCS in the full implementation period. The difference in age is attributable to an increase in the number of children removed under one year of age from the benchmark period. Additionally, the percentage of non-whites increased during this period. Furthermore, a descriptive analysis of recidivism shows that of the children declared a CHINS or removed during the full implementation period, 16.9% had previous contact with the child welfare system. The results also show that 16.1% of children removed or declared a CHINS during the full implementation period had one or more previous removals. Table 1 provides a descriptive analysis of these characteristics.

Further analysis of client flow reveals that of the 10,597 children declared a CHINS or removed in the full implementation period, 7,453 (70.3%) were screened for mental health or addiction needs. Furthermore, of these 7,453 screened children, 2,592 (34.8%) had an identified risk. A total of 1,293 (12.2%) children received behavioral health services paid by OMPP or DMHA within 60 days of their last DCS contact. Of those children who received services, 564 (43.6%) were screened and were identified as having a risk. These numbers do not include children who have received services prior to their last CHINS/removal in order to isolate the potential causal relationship between the DCS contact and the receipt of services. Table 2 is provided to show this analysis for all periods.

Mental Health Services. Analysis of DMHA data for the full implementation period reveals that 2,244 (21.2%) children received such services during this reporting period, a significantly lower proportion than during the benchmark period ($t=6.072$; $p \leq .001$). Descriptive statistics regarding the level of function of this group is provided in Table 3.

Medicaid data shows that during the full implementation period, 3,759 (35.5%) children received behavioral health services paid by OMPP, a significantly lower proportion than from the benchmark period ($t=6.852$; $p <= .001$). Between both DMHA and OMPP, a total of 3,956 (37.3%) children received behavioral health services from either agency during the full implementation period, with 1,295 (32.7%) receiving services prior to their contact with DCS.

Screening. During the first year and three quarters (21 months) of the full implementation period, a total of 10,597 children were declared a CHINS or removed. Of these children, 7,453 (70.3%) were screened for mental health or addiction needs. The results of the screening show that within the screening subgroup 3,247 (43.6%) had no identified risk, 1,614 (21.7%) required re-screening and 2,592 (34.8%) had an identified risk. Of those with an identified risk, 2,083 (80.4%) were identified as

needing an urgent referral. Further analysis reveals that 564 (19.1%) children, having an identified risk, received treatment within 60 days of referral as a result of the screening.

Recidivism and Permanency. To measure recidivism and stability for the full implementation period, the same variables were used as in the benchmark and pilot periods. These variables include initial CHINS date, current CHINS date, initial removal date, current removal date, and total number of removals. The presence of multiple CHINS, as defined by an initial CHINS date occurring before the current CHINS date, indicates a pattern of recidivism. The analysis shows that 1,790 (16.9%) children removed or declared a CHINS during the full implementation period had a previous CHINS. A logistic regression model was also utilized, using the multiple CHINS indicator as the dependent variable and age, race, gender, a variable indicating that a child received DMHA or OMPP services prior to their initial CHINS, a dichotomous version of screening results as independent variables to determine the probability of having multiple CHINS, and a variable indicating if the screening identified risk. The results of the regression show that age, receiving mental health services paid for by OMPP, and having a risk identified in screening are significant variables associated with recidivism during the full implementation period. More specifically, older children are more likely to experience recidivism than younger children, and those who had received services paid for by DMHA or OMPP prior to their first CHINS or removal are less likely to experience recidivism. Also of interest, the results indicate that if the screening reveals an identified risk, a child is more likely to experience recidivism. This suggests that children who have behavioral health needs that have not been met are more likely to experience multiple contacts with DCS.

In addition to recidivism, a measure of stability was computed based upon the number of removals. If a child had more than a single removal, a variable indicating such was coded as 0. This measure indicates that the child is experiencing placement stability. The data show that 1710 (16.1%) children who were removed or declared a CHINS during the full implementation period had a previous removal. The same logistic regression model used to analyze recidivism was used to analyze the stability measure. The results indicate several significant predictors of multiple removals during the full implementation period, including age and whether received services are paid for by OMPP. Specifically, older children are more likely to have multiple removals than younger children. Furthermore, if a child received services paid by OMPP, the children are more likely to experience stability. Also of interest, the results indicate that if the screening reveals an identified risk, a child is more likely to experience placement stability, suggesting that those with multiple removals are likely to have a need for such treatment. The full results of the regression model are presented in Table 4.

Service Expenditures. Medicaid data for the full implementation period allowed the evaluation team to examine the costs associated with behavioral health treatment. The data show that of the 10,597 children removed or declared a CHINS during the full implementation period, 3,759 (35.5%) children in the DCS system received mental health or addiction services paid by Medicaid dollars totaling $13,315,975. The average dollar amount spent for these services per child was $3,542 in this period. When compared to the dollars spent on behavioral health services per child during the benchmark ($2,269) and pilot ($1,787) periods, the average cost per child has increased during the full implementation period. As a comparison, the total dollars spent on behavioral health services for all children during the full implementation period was $185,032,434 for 75,215 children, an average of $2,460 per child.

III. SERVICES PROVIDED

Table 5 depicts the number of service hours, the number of recipients, and the average number of service hours provided to each child receiving services per period, by service category. The results show that number of service hours rendered has remained relatively stable overall; however, the number of children receiving these services has grown dramatically from the benchmark period to the full implementation period. The decreasing average number of service hours rendered per child over time however, may indicate that the capacity of the service providers is not growing sufficiently to meet the expanding need. It is not possible to determine with these data what the most appropriate level of clinical care is for these children.

Table 6 compares the benchmark and full implementation periods by identified risk. As the screening tool had not yet been implemented during the benchmark period, the numbers during this time include all children. This table shows that while capacity has not grown with need, it does indicate that services are being targeted toward those children with a need. This is evidenced by the differences between the average numbers of services provided to children within each risk group. In nearly all cases, children with an identified risk receive more services per child than those who do not have an identified risk. The notable exception is visits to 24 hour facilities, indicating that more children with an identified risk are receiving less care in 24 hour facilities.

Cluster analysis was used to determine how children can be grouped based on the types of services they receive. Initially, hierarchical clustering was performed using Ward's Method with a Euclidean distance measure. After determining the appropriate number of clusters, a k-means cluster analysis was run based on the cluster centroids obtained from the hierarchical cluster analysis.
The data used for cluster analysis only included 11 of the service categories. Laboratory and transportation services were excluded because of low relevance. The other excluded categories had very low utilization rates, with some as low as zero. The date was filtered to include only those children who received services during the full implementation period.

Individuals were assigned cluster membership based on the results of the k-means clustering. Individuals can be categorized into a high intensity service usage category and a low intensity service usage category. The clusters are of similar size, with the high intensity service usage category containing 3,146 individuals and the low intensity service usage category containing 2,384.

A logistic regression was run to determine whether any demographic variables were useful in determining cluster membership. The dependent variable was cluster membership. The independent variables included age, nonwhite, sex, and several indicator variables. The first indicator variable is an indicator of whether or not the child received DMHA services prior to their initial CHINS. The second indicator variable indicates whether or not the child received OMPP services prior to their initial CHINS. The final indicator variable indicates whether or not the child has an identified risk. Significant predictors include age, nonwhite, prior DMHA services, prior OMPP services, and being identified as having a risk. Age and the three indicator variables increase the chances that a child falls into the second, higher service usage, category. Nonwhite, however, reduces the chance that a child will belong to the second cluster with its higher rate of service use.

IV. DISCUSSION

This analysis provides a descriptive profile of children having contact with the child welfare system. The analyses also demonstrate that a relationship exists between mental health and/or addiction needs and the number of removals that a child has. As a result, it is anticipated that as this initiative progresses, a significantly greater proportion of children having contact with the child welfare system will receive mental health and addiction treatment as a result of the screening. At this point in the screening initiative; however, it cannot be determined if contact with the child welfare system is a result of untreated mental health/addiction needs or if these needs are a result of the contact. Further evaluation of this project is necessary in order to clarify this relationship and determine causality. While the results of this analysis are not conclusive, they do provide a basis for comparison with regard to future longitudinal study.

Table 1: Descriptive Statistics of DCS Data

	BENCHMARK		PILOT		FULL IMPLEMENTATION		TOTAL	
DEMOGRAPHICS	N	%	N	%	N	%	N	%
Age (F=38.197, p ≤ .001)								
Less Than One Year	38	1.3%	297	13.3%	1629	15.4%	1964	12.5%
1 To 4 Years Old	983	34.9%	681	30.4%	2994	28.3%	4658	29.8%
5 To 8 Years Old	587	20.8%	410	18.3%	2059	19.4%	3056	19.5%
9 To 13 Years Old	632	22.4%	425	19.0%	2106	19.9%	3163	20.2%
14 To 17 Years Old	576	20.5%	425	19.0%	1809	17.1%	2810	18.0%
Total	2816	100.0%	2238	100.0%	10597	100.0%	15651	100.0%
Gender (F=0.830, p ≤ .920)								
Male	1426	50.6%	1139	50.9%	5345	50.4%	7910	50.5%
Female	1390	49.4%	1099	49.1%	5252	49.6%	7741	49.5%
Total	2816	100.0%	2238	100.0%	10597	100.0%	15651	100.0%
Race (F=6.649, p ≤ .001)								
White	1864	66.2%	1555	69.5%	7390	69.7%	10809	69.1%
Non White	952	33.8%	683	30.5%	3207	30.3%	4842	30.9%
Total	2816	100.0%	2238	100.0%	10597	100.0%	15651	100.0%
CLIENT FLOW								
Previous CHINS (F=0.747, p ≤ .474)								
Yes	495	17.6%	398	17.8%	1790	16.9%	2683	17.1%
No	2321	82.4%	1840	82.2%	8807	83.1%	12968	82.9%
Total	2816	100.0%	2238	100.0%	10597	100.0%	15651	100.0%
Previous Removal (F=.871, p ≤ .419)								
Yes	450	16.0%	336	15.0%	1710	16.1%	2496	15.9%
No	2366	84.0%	1902	85.0%	8887	83.9%	13155	84.1%
Total	2816	100.0%	2238	100.0%	10597	100.0%	15651	100.0%

Table 2: Client Flow Analysis

	Total Number of CHINS/Removals	Number (%) of Children Screened for Mental Health/Addiction Needs[1]	Number (%) of Children with an Identified Risk[2]	Number (%) of Children receiving Mental Health/Addiction treatment[3]	Number (%) of Children receiving assessment[4]
Benchmark Period (July 1, 2003-June 30, 2004)	2816	N/A	N/A	297 (10.5%)	288 (10.2%)
Pilot Period (July 1, 2004-December 31, 2004)	2238	876 (39.1%)	342 (15.3%)	269 (12.0%)	258 (11.5%)
Full Implementation Period (January 1, 2005-September 30, 2006)	10597	7453 (70.3%)	2592 (34.8%)	1293 (12.2%)	1095 (10.3%)

[1] Percentage calculated as a function of the total number of CHINS/Removals occurring during each research period.
[2] As a percentage of the total number of children screened.
[3] Only children who received services of OMPP or DMHA within 60 days of their last CHINS/removal and did not receive services prior to their first CHINS were included. The percentage is calculated as a function of the total number of CHINS/removals within each research period.
[4] Only children who received an assessment paid for by OMPP within 60 days of their last CHINS/removal.

Table 3: Descriptive Statistics of DMHA Data

		Benchmark N=747	Pilot N=489	Full N=2244	Overall N=3480
A. Affective Symptoms (F=14.073 p ≤ .001)	Mean	16.1	16.0	15.3	15.6
	(S.D)	(4.0)	(4.1)	(4.2)	(4.2)
B. Suicidal Ideation/Behaviors (F=1.006 p ≤ .366)	Mean	6.8	6.8	6.7	6.8
	(S.D)	(0.8)	(0.8)	(0.9)	(0.9)
C. Abuse (F=11.435 p ≤ .001)	Mean	6.8	6.7	6.6	6.7
	(S.D)	(0.8)	(1.0)	(1.2)	(1.1)
D. Neglect (F=21.399 p ≤ .001)	Mean	6.7	6.7	6.4	6.5
	(S.D)	(1.1)	(1.0)	(1.5)	(1.4)
E. Health/Physical Status (F=4.175 p ≤ .015)	Mean	6.7	6.8	6.7	6.7
	(S.D)	(1.2)	(0.7)	(0.8)	(0.9)
F. Thinking (F=1.288 p ≤ .276)	Mean	10.7	10.9	10.6	10.7
	(S.D)	(3.0)	(3.0)	(3.1)	(3.1)
G. Family (F=11.207 p ≤ .001)	Mean	15.6	15.9	14.9	15.2
	(S.D)	(5.0)	(5.0)	(5.0)	(5.0)
H. School (F=1.933 p ≤ .145)	Mean	23.5	23.8	23.3	23.4
	(S.D)	(5.2)	(5.2)	(5.4)	(5.3)
I. Disruptive Behavior (F=9.956 p ≤ .001)	Mean	18.1	18.2	17.6	17.8
	(S.D)	(3.2)	(3.2)	(3.6)	(3.5)
J. Substance Use/Abuse (F=6.249 p ≤ .093)	Mean	20.7	20.7	20.5	20.6
	(S.D)	(1.3)	(1.4)	(1.8)	(1.6)

*****LOF score ranges vary based upon differing scales. Ranges are presented below. For additional questions contact the Division of Mental Health and Addiction.
A: 3-21; B: 1-7; C: 1-7; D: 1-7; E: 1-7; F: 2-14; G: 3-21; H: 4-28; I: 3-21; J: 3-21

Table 4: Logistic Regression Analysis

	Recidivism			Placement Stability		
	Benchmark	Pilot	Full	Benchmark	Pilot	Full
	B (S.E.E.)	B (S.E.E.)	B (S.E.E.)	B (S.E.E.)	B (S.E.E.)	B (S.E.E.)
Constant	-1.838*** (.110)	-1.819*** (.113)	-2.053*** (.055)	2.351*** (.122)	2.430*** (.131)	2.204*** (.057)
Age	0.059*** (.009)	0.071*** (.010)	0.069*** (.005)	-0.098*** (.010)	-0.117*** (.011)	-0.100*** (.005)
Nonwhite	-0.165 (.108)	-0.187 (.124)	-0.086 (.058)	0.128 (.112)	-0.067 (.131)	-0.020 (.058)
Female	-0.177 (.100)	-0.112 (.113)	-0.022 (.053)	0.023 (.105)	0.115 (.124)	0.097 (.054)
DMHA Services Provided	0.692 (.547)	-0.370 (.645)	-0.250 (.198)	18.546 (7578.897)	18.720 (6706.708)	0.309 (.228)
Received Services Paid by OMPP	-0.940*** (.248)	-0.949*** (.259)	-0.495*** (.095)	1.757*** (.348)	1.710*** (.372)	0.840*** (.109)
Risk Identified in Screening	N/A	-0.393* (.169)	0.176** (.060)	N/A	0.655*** (.193)	0.284*** (.066)
x^2	54.222***	64.907***	250.428***	135.923***	154.897***	456.012***
Nagelkerke R^2	.031	.047	.039	.081	.117	.072

***p ≤ .001 **p ≤ .01 *p ≤ .05

Table 5: Service Hours Provided and Number of Children Receiving Services per Quarter within each Period*

	Benchmark (N=2,816**)			Pilot (N=2,238**)			Full Implementation (N=10,597**)		
Service Category	**Hours of Services**	**Number of Recipients**	**Average Hours per Child**	**Hours of Services**	**Number of Recipients**	**Average Hours per Child**	**Hours of Services**	**Number of Recipients**	**Average Hours per Child**
Assessment	1688.69	944.00	1.79	2661.13	1358.00	1.96	2207.86	1432.14	1.54
Case Management	4041.56	191.75	21.08	4836.50	283.00	17.09	3891.82	338.14	11.51
Crisis Services	662.75	277.00	2.39	1148.88	455.00	2.53	1245.54	513.86	2.42
Day Treatment Service	10308.00	39.25	262.62	18258.00	54.50	335.01	16896.96	60.57	278.96
Family Support	2355.75	211.50	11.14	2385.50	280.00	8.52	1491.61	259.43	5.75
Group Therapy	740.50	52.25	14.17	901.50	69.50	12.97	586.14	62.71	9.35
Individual Counseling/Psychotherapy	5710.31	528.25	10.81	6591.00	692.00	9.52	4694.93	726.57	6.46
Medication Service	2255.94	992.75	2.27	2725.83	1373.00	1.99	2158.91	1353.71	1.59
Other Medical Service	55.13	56.25	0.98	74.75	70.00	1.07	73.07	71.14	1.03
Skills Training/Skills Maintenance	3566.81	161.00	22.15	4096.25	238.50	17.18	2345.54	245.43	9.56
Visit -- 24-Hour Facility	458.53	252.25	1.82	986.37	424.00	2.33	806.70	415.00	1.94

*** Calculated by quarter (i.e., Total Benchmark ÷ 4; Total Pilot ÷ 2; Total Full Implementation ÷ 7)**
**** For all quarters within each period**

Table 6: Service Hours Rendered and Number of Children Receiving Services by Risk Group, by Quarter*

	Benchmark (N=2,816**)			Full Implementation (N=10,597**)					
				No Risk Identified			Risk Identified		
Service Category	**Hours of Services**	**Number of Recipients**	**Average Hours per Child**	**Hours of Services**	**Number of Recipients**	**Average Hours per Child**	**Hours of Services**	**Number of Recipients**	**Average Hours per Child**
Assessment	1688.69	944.00	1.79	1416.43	951.00	1.49	791.43	481.14	1.64
Case Management	4041.56	191.75	21.08	2008.43	191.71	10.48	1883.39	146.43	12.86
Crisis Services	662.75	277.00	2.39	811.21	338.71	2.39	434.32	175.14	2.48
Day Treatment Service	10308.00	39.25	262.62	8128.50	31.86	255.15	8768.46	28.71	305.37
Family Support	2355.75	211.50	11.14	812.61	144.71	5.62	679.00	114.71	5.92
Group Therapy	740.50	52.25	14.17	248.14	31.43	7.90	338.00	31.29	10.80
Individual Counseling/Psychotherapy	5710.31	528.25	10.81	2542.93	420.86	6.04	2152.00	305.71	7.04
Medication Service	2255.94	992.75	2.27	1171.05	865.57	1.35	987.86	488.14	2.02
Other Medical Service	55.13	56.25	0.98	44.14	42.29	1.04	28.93	28.86	1.00
Skills Training/Skills Maintenance	3566.81	161.00	22.15	1375.93	145.86	9.43	969.61	99.57	9.74
Visit -- 24-Hour Facility	458.53	252.25	1.82	476.52	232.29	2.05	330.18	182.71	1.81

*** Calculated by quarter (i.e., Total Benchmark ÷ 4; Total Full Implementation ÷ 7)**
**** For all quarters within each period**

Table 7: Cluster Centroids **FULL IMPLEMENTATION**

Service Category	Hierarchical Cluster N = 2,584	Hierarchical Cluster N = 2,946	K-means Cluster N = 2,384	K-means Cluster N = 3,146
	Low Intensity	High Intensity	Low Intensity	High Intensity
1. Assessment	0.82	0.90	0.80	0.95
2. Case Management	0.16	0.66	0.12	0.83
3. Crisis Services	0.41	0.43	0.37	0.48
4. Day Treatment Service	0.00	0.14	0.01	0.17
5. Family Support	0.04	0.47	0.03	0.58
6. Group Therapy	0.00	0.14	0.01	0.16
8. Individual Counseling/Psychotherapy	0.03	0.95	0.19	0.95
12. Medication Service	0.72	0.81	0.70	0.86
13. Other Medical Service	0.05	0.07	0.04	0.09
19. Skills Training/Skills Maintenance	0.14	0.29	0.08	0.40
25. Visit -- 24-Hour Facility	0.16	0.19	0.15	0.21

Table 8: Logistic Regression Analysis – Clusters **Full Implementation Period**

	Membership In High Service Intensity Cluster
	B (S.E.)
Constant	-1.723*** (.068)
Age	0.139*** (.007)
Nonwhite	-0.401*** (.073)
Female	0.002 (.063)
DMHA Services Provided	0.255 (.181)
Received Services Paid by OMPP	1.383*** (.084)
Risk Identified in Screening	0.719*** (.069)
x^2	1455.31***
Nagelkerke R^2	.311

***p ≤ .001 **p ≤ .01 *p ≤ .05